

What is claimed is:

1. A method of forming quantum dots, the method comprising:
an $\text{In}_x\text{Ga}_{1-x}\text{As}$ strained layer formed on a buffer layer; and
 $\text{In}(\text{Ga})\text{As}$ quantum dots formed on the $\text{In}_x\text{Ga}_{1-x}\text{As}$ strained

5 layer.

2. The method of forming quantum dots of claim 1, wherein the buffer
layer is made of InAlAs , InAlGaAs , InP , InGaAsP or is a heterojunction layer of at
least two of these four materials.

10 3. The method of forming quantum dots of claim 1, wherein in the
 $\text{In}_x\text{Ga}_{1-x}\text{As}$ strained layer, "x" is 0.05 ~0.45.

4. The method of forming quantum dots of claim 1, wherein the thickness
of the $\text{In}_x\text{Ga}_{1-x}\text{As}$ strained layer is in a range of 0.5 nm ~ 10 nm.

15 5. The method of forming quantum dots of claim 1, wherein $\text{In}(\text{Ga})\text{As}$
quantum dots are formed by metal organic chemical vapor deposition (MOCVD),
molecular beam epitaxial (MBE), or chemical beam epitaxial (CBE).

20 6. The method of forming quantum dots of claim 1, wherein the thickness
of the $\text{In}_x\text{Ga}_{1-x}\text{As}$ quantum dots is 3~10 monolayers.

25 7. The method of forming quantum dots of claim 1, wherein the
 $\text{In}_x\text{Ga}_{1-x}\text{As}$ strained layer 5 and the $\text{In}(\text{Ga})\text{As}$ quantum dots 7 can be stacked 1 to 30
sets on top of one another.